



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:

Jacob et al.

Application No.: 09/763,980

Confirmation No.: 3600

Filed: April 20, 2001

For: Differential For A Motor Vehicle

Group: 3681

Examiner: Dennis Abdelnour

Our File: INA-PT049

(3284-18US)

Date: December 31, 2002

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GROUP 3600

REPLY UNDER 37 CFR §1.111

Commissioner for Patents
Washington, D.C. 20231

Sir:

This Reply is being timely filed in response to the Office Action dated October 2, 2002 (Paper No. 11).

Claims 1-4 and 6 are currently pending in this application. Reconsideration of the rejections of these claims is respectfully requested

Claims 1-4 were rejected under 35 U.S.C. §103 as unpatentable over U.S. Patent 2,135,477 to Griswold in view of U.S. Patent 4,699,527 to Hutzler. Griswold is cited as disclosing a differential having a bevel-pinion shaft supported by two angular-contact ball bearings. The Examiner admits that Asberg does not disclose the bearings as

double-row bearings and cites Hutzal as disclosing similar angular-contact bearings with a double row construction. Applicants respectfully traverse this rejection.

Claim 1 recites a differential for a motor vehicle having a bevel-pinion shaft supported by two spaced and axially pretensioned angular contact ball bearings, with the angular contact ball bearings being unilaterally loadable double-row tandem angular-contact ball bearings.

Griswold discloses a differential with two spaced and axially loadable single row ball bearings. As admitted in the Action, there is no disclosure of double-row tandem angular-contact ball bearings.

Hutzal discloses a double-row, angular contact ball bearing. However, it is not unilaterally loadable and would be unsuitable for use in a differential, as claimed. As shown in the attached copy of Figures 10 and 11 of Hutzal, and as described in the specification at column 5, lines 36-43, the ball track 37 of Hutzal is bounded on both sides by high rims 38 (high-lighted in blue on the attached copy of Figure 10). The smaller diameter ball track is bounded only on one side. However, this arrangement prevents the bearing of Hutzal from being unilaterally loaded, since the axial load would be taken out by the high rims 38 of the captured balls 34 of the ball track 37. Accordingly, if such bearings were arranged in a differential according to the present invention and pre-tensioned by tightening the threaded piece (11) so that the bevel-

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pinion shaft (5) is pulled to the left (as shown in Figure 2 of the present application), all of the axial pretension load would be carried in the outer, larger diameter track by the high rims 38. This would result in the Hutzet bearings not being unilaterally loaded. The bearings of Hutzet therefore would not meet the requirement of the present differential. Accordingly, withdrawal of the section 103 rejection of claim 1 is respectfully requested.

Claims 2-4 and 6 depend from claim 1 and should be patentable over this combination for the same reasons as noted above in connection with claim 1.

Claim 6 was rejected under 35 U.S.C. §103 as unpatentable over Griswold in view of Hutzet, further in view of De 35 22 600 to Ebert. Applicants respectfully traverse this rejection.

Claim 6 depends from claim 1 and recites that the inner ring of the second bearing (17) in the arrangement of the invention is supported in an axial direction against a deformable sleeve.

While Ebert shows a deformable sleeve (9) in connection with a known differential arrangement using tapered roller bearings, Ebert does not cure the deficiencies with respect to the combination of Griswold and Hutzet. Claim 6 should therefore also be patentable over this combination for the same reasons as noted above

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in connection with claim 1. Accordingly, withdrawal of the section 103 rejection of claim 6 is respectfully requested.

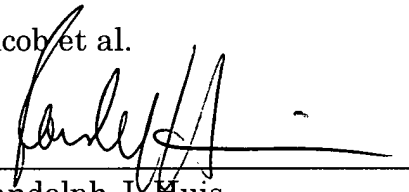
If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claim 1-4 and 6, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Jacob et al.

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	First Named Inventor	Werner Jacob	
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ENCLOSURES (check all that apply)		
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	RANDOLPH J. HUIS Volpe and Koenig, P.C.	Reg. No. 34,626
Signature		
Date	December 31, 2002	

CERTIFICATE OF MAILING			
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: December 31, 2002			
Typed or printed name	RANDOLPH J. HUIS		
Signature		Date	December 31, 2002

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